

**Notice of Allowability**

Application No.

10/538,159

Examiner

Sonny TRINH

Applicant(s)

MEDRANO, ALVARO LOPEZ

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 06/08/05.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **DETAILED ACTION**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. John M. CARSON (Reg. No. **20,995**) on 01/16/2007.

#### ***Examiner's Amendment***

2. The application has been amended as follows:

**In the claims** (as amended by amendment filed 06/08/2005):

In **claim 1**, line 20, the term "target ration", has been changed to -- "target ratio"--;

In **claim 9**, line 16, the term "target ration", has been changed to -- "target ratio"-- .

**In the specification:**

In page 2 line 18, the term "WCMDA", has been changed to -- "WCDMA"--;

In page 6 line 17, the term "WCMDA", has been changed to -- "WCDMA"--;

In page 22 line 28, the term "WCMDA", has been changed to -- "WCDMA"--;

In page 25 line 18, the term "WCMDA", has been changed to -- "WCDMA"--.

This Examiner's amendment was necessary to correct the typographical in the specification and in the claim language.

**(End of Examiner's Amendment)**

***Allowable Subject Matter***

3. **Claims 1-9** are allowed.

The following is an examiner's statement of reasons for allowance:

This invention relates to the field of wireless communications and, more specifically, to the outer loop of the power control system of a mobile communications systems in a cellular infrastructure that allows fulfilling a given Quality of Service (QoS) with the minimum power level necessary. This outer loop is in charge of setting the desired signal to interference target ratio that fulfils the required quality of service in a radio-electric environment characterized by stochastic models.

The instant application is directed to an non-obvious improvement over the invention described in Pat. No. 6,434,124 to Rege. Rege explains that the Radio waves propagate in a medium that suffers random variations in its physical properties, which affect the signal field intensity, so that the field values show variations along points equidistant from the transmitter (variations with location) and in time (time variations). By using numerical approximations to the statistics that describe the variation of the SIR in a given environment, an iterative method is applied that allows

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obtaining the margin above the SIR median required to comply with the outage probability specification (QoS) for this specific link, as well as for second-order statistical moment values (such as the typical deviation) which are dynamically estimated and thus are compatible with the various fading conditions that characterise an environment at a given time.

The improvement over Rege comprises a method of determining a signal to interference target ratio for operation of the outer loop of a power control system of a mobile communications system with a cellular infrastructure, wherein the ratio is determined based on a signal received from one of a base station and a mobile station of the mobile communications system, the method comprising: estimating the desired signal to interference ratio of the received signal; estimating the following statistical moments of the desired signal to interference ratio: typical deviation of the slow or lognormal fading component, typical deviation of the Gaussian distribution describing the joint statistical variation of all interfering signals, and, in the case of a direct beam existing between the emitter and the receiver, the Rice factor, comprising the quotient of the deterministic component and the random component of the desired signal; based on the estimated statistical moments and on a specification of the outage probability, calculating the margin of the desired signal to interference ratio by the Newton-Raphson iteration method; and determining the desired signal to interference target ration for the outer loop based on the calculated margin.

. This patentable distinction is included in independent **claim 1**.

**Claims 6, 9** are the corresponding apparatus claims and computer program necessary for the method claim of claim 1 and are similarly allowed.

**Claims 2-5** are allowed by virtue of their dependency on claim 1.

**Claims 7-8** are allowed by virtue of their dependency on claim 6.

### ***Conclusion***

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward URBAN can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

1/16/07

  
SONNY TRINH  
PRIMARY EXAMINER